

## 60W 0/1-10v dimmable constant voltage led driver



### ■ Features

- Constant Current (C.V.) output
- Built-in active PFC function, High efficiency up to 88%
- Input voltage/Full range(up to 305VAC)
- Protections: Short circuit/Over voltage/Over load/Over temperature
- THD≤16%, Dimming range: 0-100%/10-100%
- Built-in 4 in 1 dimming function(1-10V or PWM or Resistor)
- Noise free, flicker free, 5-7 years warranty
- OEM & ODM, no MOQ, Support customization

### ■ Applications

- LED indoor lighting
- LED panel light
- LED track light
- LED ceiling light
- LED tri-proof light
- LED down light
- LED kitchen light
- LED grille light
- LED strip light

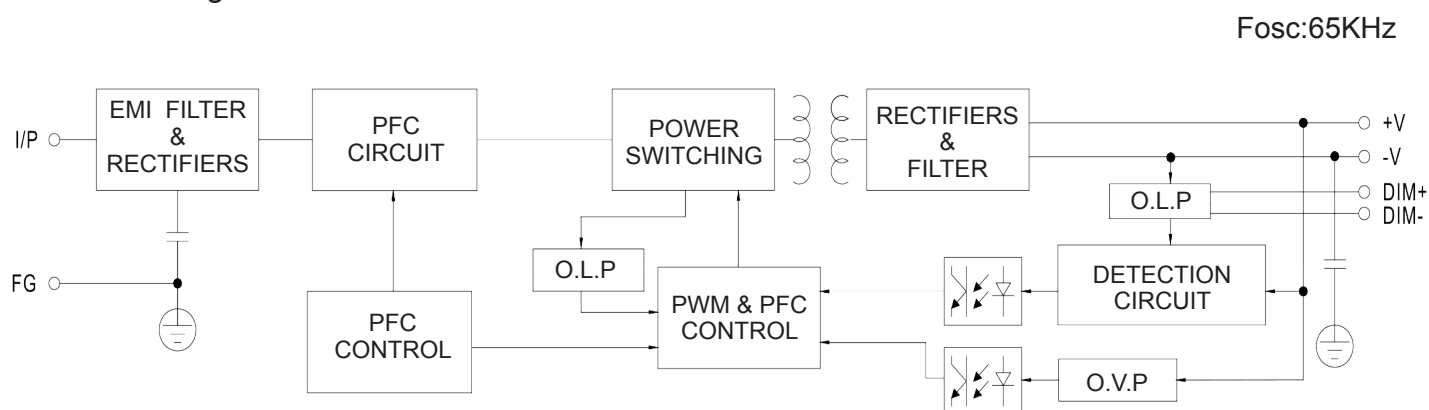
### ■ Description

The 0-10V constant voltage series produced by Zoran Technology is an AC-to-DC dimming driver. operates from 90~305VAC and offers models with different rated voltage ranging ~between 12V/24V/36V/48V/54V/60V etc. Thanks to the high efficiency up to 88%, with the fanless design, the entire series is able to operate for -40~ +70 °C case temperature under free air convection. It can be widely matched with all European and Austrian mainstream dimmers and lighting control systems, such as: Philips, Qisheng, crestron, Lutron and Leviton series etc. dimmers and systems, flicker free, achieve perfect soft dimming.

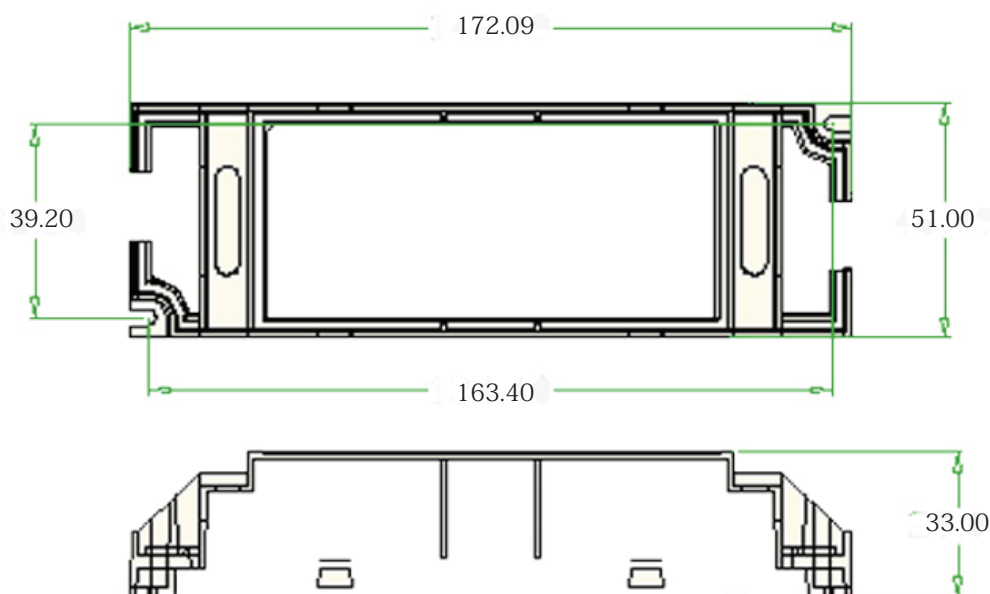
## ■ Electrical Specification

| MODEL        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ZR-GVP12NE-60W                                                                                     | ZR-GVP24NE-60W | ZR-GVP36NE-60W | ZR-GVP48NE-60W | ZR-GVP54NE-60W |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|
| Output       | Output Voltage <small>Note.1</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 12 VDC                                                                                             | 24 VDC         | 36 VDC         | 48 VDC         | 54 VDC         |
|              | Oputut Current <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5000 mA                                                                                            | 2500 mA        | 1670 mA        | 1250 mA        | 1100 mA        |
|              | Rated Power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 60 W                                                                                               | 60 W           | 60 W           | 60 W           | 60 W           |
|              | Voltage Tolerance <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ±3%                                                                                                | ±3%            | ±3%            | ±3%            | ±3%            |
|              | Line Regulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±0.5%                                                                                              | ±0.5%          | ±0.5%          | ±0.5%          | ±0.5%          |
|              | Setup,Rise Time <small>Note.6</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1600ms,800ms/115VAC 500ms,1000ms/230VAC                                                            |                |                |                |                |
|              | Hold Up Time <small>(Typ.)</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10ms/115VAC 230VAC                                                                                 |                |                |                |                |
| Input        | Rate Voltage <small>Note.5</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 90~265VAC OR 100-277VAC                                                                            |                |                |                |                |
|              | Frequency Rance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 48-62Hz                                                                                            |                |                |                |                |
|              | Power Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PF≥0.98/115VAC PF≥0.96/230VAC PF≥0.95/265VAC at full load                                          |                |                |                |                |
|              | THD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | THD≤16%(Bipolar)                                                                                   |                |                |                |                |
|              | Full load Efficiency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ≥85%                                                                                               | ≥86%           | ≥87%           | ≥87%           | ≥88%           |
|              | AC Current <small>(Typ.)</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.59A/115VAC 0.3A/230VAC 0.26A/265VAC                                                              |                |                |                |                |
|              | Input signal <small>(Typ.)</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0/1-10V / PWM / Resistor                                                                           |                |                |                |                |
|              | No-load power consumption                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ≤1.0W                                                                                              |                |                |                |                |
| Protection   | Over Current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 95-108%                                                                                            |                |                |                |                |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Protection type:Constant current limiting,recovers automatically after fault condition is removed  |                |                |                |                |
|              | Over Load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ≤120% Recovers automatically after fault condition is removed                                      |                |                |                |                |
|              | Short Circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Hiccup Mode,Recovers automatically after fault condition is removed                                |                |                |                |                |
|              | Over Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Protection type:Shut down O/P voltage,re-power on to recover                                       |                |                |                |                |
|              | Over Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Shut down O/P voltage,re-power on to recover                                                       |                |                |                |                |
| Environmen   | Working Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Tcase=-40~+70 ℃ (Refer to “Derating curve”)                                                        |                |                |                |                |
|              | Max Case Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Tcase=+75 ℃                                                                                        |                |                |                |                |
|              | Working Humidity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20-95%RH non-condensing                                                                            |                |                |                |                |
|              | Storage TEMP. Humidity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -40~+80 ℃ 10-95%RH                                                                                 |                |                |                |                |
|              | TEMP. Coefficient                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ±0.03%/ ℃ (0-50 ℃ )                                                                                |                |                |                |                |
| Safety & EMC | Safe Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | U8750,CSA C22.2 No.250.13-12;ENEC AS/NZS IEC EN61347-1;AS/NZS IEC EN61347-2-13 independent EN62348 |                |                |                |                |
|              | Withstand Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P-O/P:3.75KVAC I/P-FG:2.0KVAC O/P-FG:1.0KVAC                                                     |                |                |                |                |
|              | Isolation Resistance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P,I/P-FG,O/P-FG:100M ohms/500VDC/25 ℃ /70%RH                                                 |                |                |                |                |
|              | EMC Emission                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Compliance to EN55015,EN61000-3-2 Class C(≥60% load);EN61000-3-3;GB17743;GB17625.1                 |                |                |                |                |
|              | EMC Immunity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Compliance to EN61000-4-2,3,4,5,6,8,11;EN61547 heavy industry level(surge 4KV)                     |                |                |                |                |
| Others       | Dimension (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 172*51*33 mm                                                                                       |                |                |                |                |
|              | Weight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 300g                                                                                               |                |                |                |                |
|              | Packing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 50pcs/15Kg/ctn                                                                                     |                |                |                |                |
| Note         | 1.All parameters Not specially mentioned are measured at 230VAC input, rated load and 25 ℃ of ambient temperature.<br>2.Ripple&Noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3.Tolerance: includes set up tolerance, line regulation and load regulation.<br>4.The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufactures must re-qualify EMC Directive on the complete installation again.<br>5.Please refer to the product warranty on Zoran Technology website <a href="http://www.zorantech.com">http://www.zorantech.com</a> .<br>6.If you need other special parameters, please contact our customer service for consultation! |                                                                                                    |                |                |                |                |

## Block Diagram

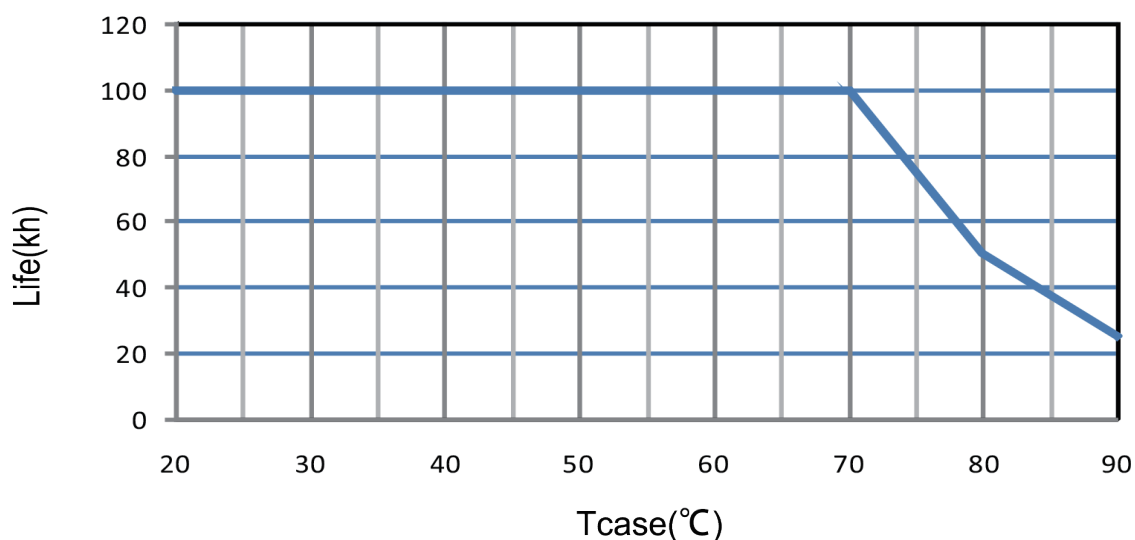


## Mechanical Specification



- ※ Please connect the corresponding neutral wire (N) and fire wire (L) according to the label;
- ※ Please connect the corresponding dimming signal positive electrode (DIM+), dimming signal negative electrode (DIM-), LED lamp positive (+) and LED lamp negative (-) according to the label.
- ※ In addition, the input and output lines can be customized according to customer requirements. For more information, please contact Zoran Customer Service;

## Life



## ■ Dimming Operation

AC/L Brown  
AC/N Blue

FG (Green/Yellow)



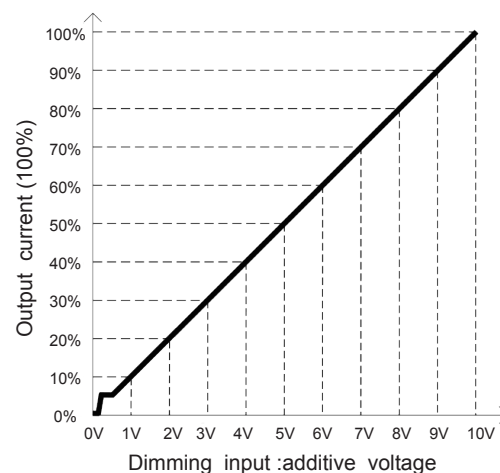
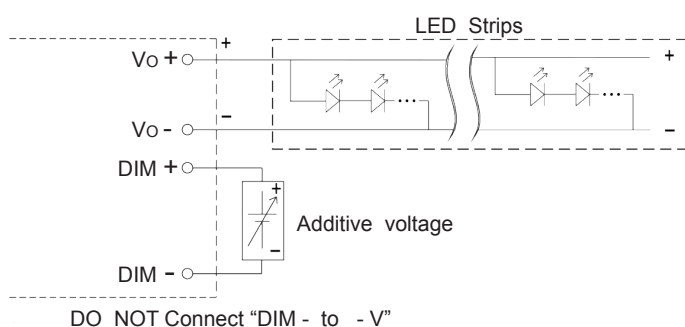
V+ Red  
V- Black

DIM+ Brown  
DIM- Blue

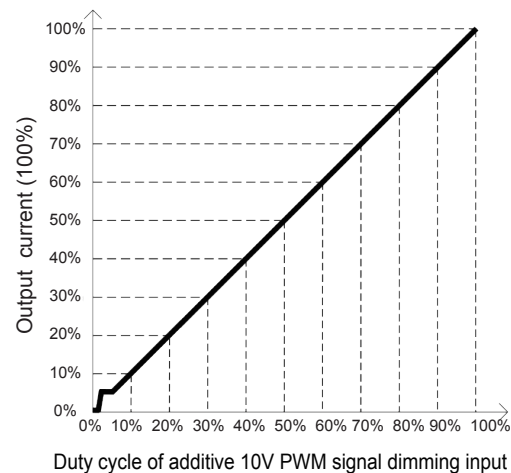
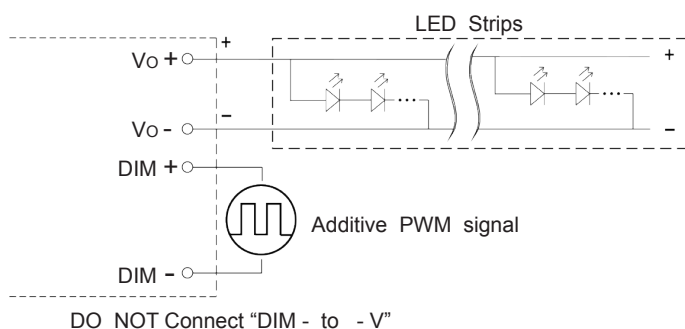
### ※ 4 in 1 dimming function(for E/A-Type)

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0-10VDC, or 1-10VDC, or 10V PWM Signal or resistance.
- Direct connecting to LED is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100μA(typ.)

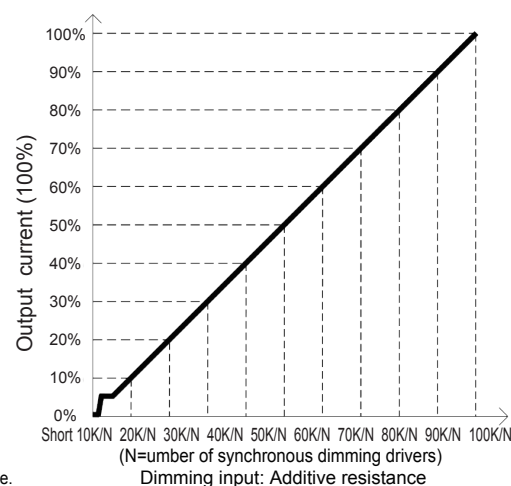
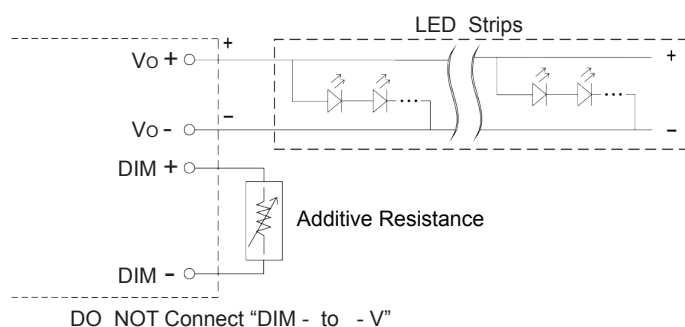
#### ◎ Applying additive 0~10VDC:



#### ◎ Applying additive 10V PWM signal(frequency range 100Hz~3KHz):



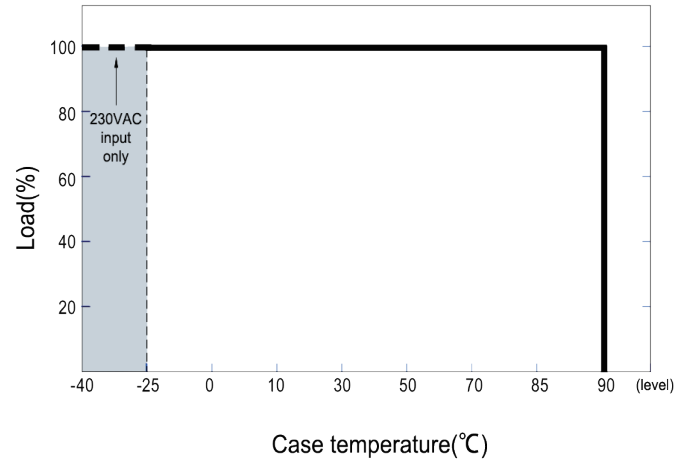
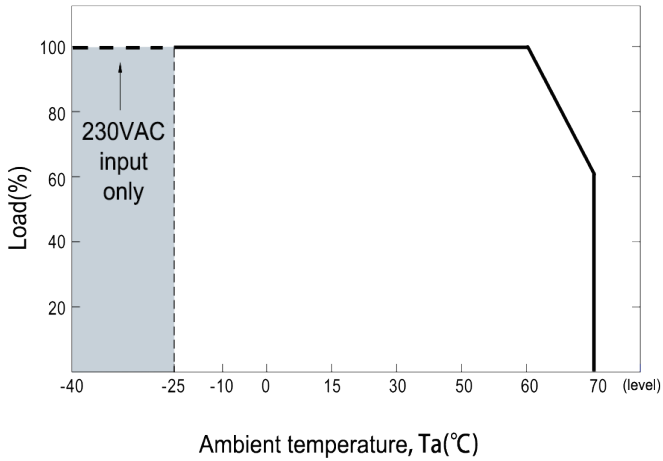
#### ◎ Applying additive resistance:



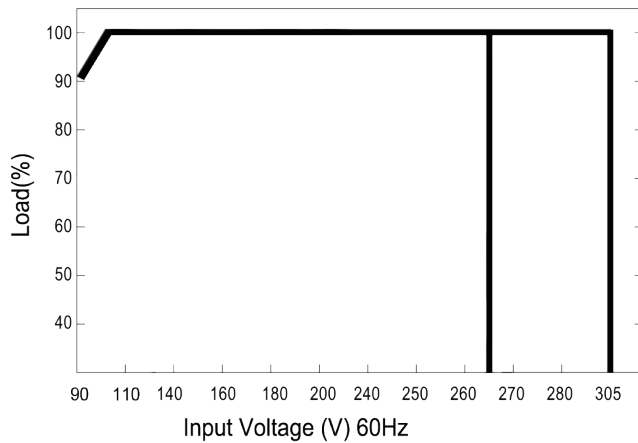
Note:

1. Min. dimming level is about 3% and the output current is not defined when  $0\% < I_{out} < 3\%$ .
2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

### Output load VS Temperature



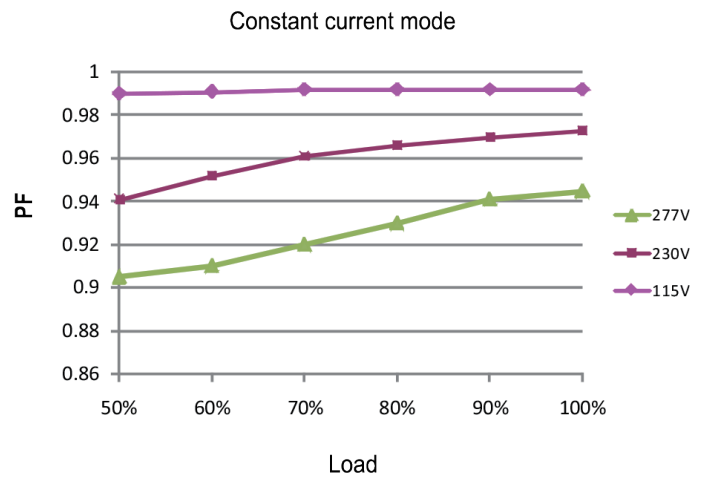
### Static characteristic curve



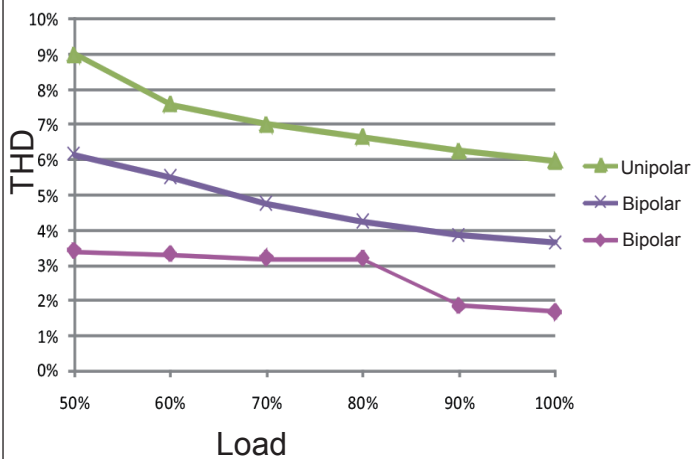
※ Derating output at low input voltage

### PF characteristic curve

※ Tcase at 80°C



### THD characteristic curve



### Efficiency VS Load

